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THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

Volume VI Number 8

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BUREAU OF PLANT INDUSTRY

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THE PLANT DISEASE BULLETIN

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Vol. VI. October 15, 1922 Number 8

CONTENTS

Corn..... 130
Apple..... 133
Pear..... 134
Peach..... 134
Raspberry..... 134
Grape..... 135
Potato..... 135
Bean..... 136
Lettuce 137
Onion..... 137
Cotton..... 138
Tobacco..... 139

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REPORTS OF CORN SMUT (USTILAGO ZEAE)

Maine: No complaints from corn diseases have reached us this year, except possibly one or two cases of smut. Even smut is not common in Maine and when I first came here I was surprised to have practical farmers send in specimens of it and ask what it was. (Morse, October 1).

Connecticut: Common. More abundant than usual. (Clinton, October 1).

New Jersey: About the same as in the past. (Cook, October 1).

West Virginia: Corn smut very prevalent and in many cases occasions considerable damage. No fields seen in which smut was not present. (Sherwood, October 1).

Ohio: In field corn, smut infections this year are below normal. This is thought to be due to weather conditions unfavorable for the spread of the fungus. (R. C. Thomas, October 1).

Michigan: Considerable noted in College plots. May be correlated with wet June and especially with proximity of plots to locations of last year. (Coons, October 1).

Minnesota: Very common in Scott, Lesueur, Nicollet, and Blue Earth Counties, the number of infected plants varying from 1 to 10%. The amount of infection in different fields in the same locality varied greatly. (Section of Plant Pathology, October 1).

North Dakota: Abundant in the southeastern part of the state and perhaps also in other sections, on both field and sweet corn. (Weniger, Oct. 1).

South Dakota: About 1%. Most of infection on first node below tassel; some on ears. (Arthur T. Evans, October 1).

FUSARIUM ROOT ROT OF CORN

Further reports concerning Fusarium root rot of corn have been received from several states, as follows:

Connecticut: Apparently above the average. In some fields of crossed corn was serious. (Clinton, October 1).

New Jersey: About same as in past year. (Cook, October 1).

West Virginia General with the crop. No accurate data obtained as to loss, but varies considerably in different sections. (Sherwood, October 1).

Ohio: This type of root rot is thought to be much less troublesome in Ohio than that due to Diplodia. Surveys have not revealed more than one or two percent for average infected fields, and this only where a short rotation of corn after corn, or corn after wheat was followed. Where longer rotations were emplcyed losses are very slight, provided care has been taken in the selection of seed corn. This disease is so closely interwoven with the Diplodia or ear mold that it is very difficult to differentiate the actual loss occasioned by each. (R. C. Thomas, October 1).

Michigan: Considerable noted in certain fields at College in selections for earliness. Greatest extent ever noted. Prevalence may be correlated with hot weather of July and August. (Coons, October 1).

Minnesota: A few badly diseased plants found in several fields in Washington County during September. (Section of Plant Pathology, October 1).

North Dakota: Stalks with lower nodes having brownish discolored tissue were found in several plantings at Fargo last month. The causal organism has not been determined as yet. How widespread this trouble is in the state we cannot say, since growers do not recognize this disease as yet and do not report it for that reason. With increase in corn production we may find this trouble increased also. (Weniger, October 1).

South Dakota: Slight amount. (Arthur T. Evans, October 1).

DIPLODIA ROOT ROT OF CORN IN OHIO

According to R. C. Thomas (see report quoted under Fusarium root rot) Diplodia seems to be more important than Fusarium as a cause of root rot in Ohio.

Ohio: The greater part of Diplodia infections are believed to have been occasioned through the use of infected seed. For the state as a whole infection varies from 3 to 5%. It is higher than this, however, in the southwestern part of the state. The weather throughout August and September this year was very unfavorable for the spread of Diplodia and for this reason it is believed that a grade of seed corn much above the ordinary will be available this year. (R. C. Thomas, October 1).

HEAD SMUT OF CORN REPORTED FROM WASHINGTON

B. F. Dana reports (October 1) that one field of corn near Pullman is badly affected with head smut caused by Sorosporium reilianum, and that the disease is also reported from Yakima County.

PURPLE SHEATH SPOT OF CORN REPORTED FROM NORTH DAKOTA

North Dakota: Purple spots on the leaf sheaths, as described by Durrell* 1920, have been observed in many fields this fall. In plantings on the Experiment Station grounds, it seems to be much more conspicuous in certain varieties and selections than in others, being perhaps more severe in later maturing corn than in the early crop. Stalks affected by root or nodal diseases often show more of this purple spot than healthy stalks, particularly when of a late maturing variety. (Weniger, October 1).

OTHER DISEASES OF CORN

Brown spot caused by Physoderma zeae-maydis is much less prevalent in Ohio this year, according to Thomas.

Rust (Puccinia sorghi) - reported from Minnesota (light infections in many localities), and North Dakota (light infections in this region this year; not nearly so severe as in other years).

Helminthosporium leaf blight - reported from Connecticut as bad in certain fields, and causing greater injury than usual due to the favorable weather this season.

Anthracnose (Colletotrichum graminicolum) - Connecticut (more abundant than usual, but not causing much damage).

THE BROWN BARK SPOT OF FRUIT TREES

Attention is called to the recent bulletin by D. B. Swingle and H. L. Morris of the Montana Experiment Station on the brown bark spot of fruit trees (Montana Agr. Exp. Sta. Bul. 146, Dec. 1921). This disease, which affects particularly apple and pear but which has also been observed on plum, prune, peach, and cherry, was first noticed in Montana in 1907 and since that time it has been under investigation there. Within the state, brown bark spot has not been found east of the Continental Divide, but west of the Divide the distribution is quite general, although there are many large areas free from it. Outside of Montana brown bark spot is known to be present in certain parts of Washington and it is probably in Oregon and Idaho, according to Swingle and Morris.

Without doubt the disease is non-parasitic in nature, as the writers of the bulletin have demonstrated that it is not infectious. They are inclined to the theory that it is caused by some fault in the chemical composition of the soil. However, it is possible that other non-parasitic factors may be responsible.

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*Durrell, L. W. The purple sheath spot of corn (Abstract) Phytopath. 10: 54-55. Jan. 1920.

The symptoms of this disease are well described in the bulletin and after studying these carefully collaborators and others are asked to report to the Plant Disease Survey concerning any diseases of a similar nature that they have been observing in their states. It seems very likely that this trouble has been noticed in other states than Montana and Washington and by contributing information on the subject, collaborators will be assisting greatly in the solution of the problem.

REPORTS OF APPLE DISEASES FROM THE WINCHESTER SECTION OF VIRGINIA

Mr. F. J. Schneiderhan, located at the branch laboratory of the Virginia Experiment Station at Winchester, has recently sent in the following notes concerning apple troubles in the northern part of the important Shenandoah Valley apple section.

Black rot (Physalospora cydoniae) is showing up more during the past week than at any other time. This disease follows injury caused by Codling Moth and Spray Burn especially at the calyx end of the apple. Bens are most heavily infected. This is typical of Black Rot infection this year. (September 15).

Bitter pit (non-parasitic) on Yorks is prevalent on approximately 35% of the fruit especially on the large sized apples. (September 15).

The severe drought of September is having a very serious effect on Staymans, resulting in a chalky lusterless color and a drying up of leaves. The leaves maintain their green color but become brittle and will probably drop off soon. (October 4).

INTERESTING APPLE BITTER ROT REPORT FROM NEW YORK

"In checking the plant disease survey report cards in this office I note this disease was reported in Sullivan County in 1917, in Columbia, Dutchess and Nassau in 1919, and in Tompkins County in 1921. Ordinarily, bitter rot is not considered of much importance in New York, at least our reports do not indicate that much stress has been placed upon the seriousness of the disease. I have never seen it in western New York and in the Hudson Valley where it has been reported most commonly it has never been considered particularly serious. I recently visited Ulster County where one grower, not far from Highland, New York, had experienced heavy losses from this disease in a block of Greenings that must have been some forty years old. The grower estimated a loss of some two hundred barrels which, judging from the effects of the disease which I saw, was not an over-estimate. (G. R. Hoerner, Cornell University, September 25, 1922)."

APPLE DISEASES REPORTED FROM ARIZONA

J. G. Brown, under date of September 1, has the following to report concerning the apple diseases of Arizona:

Crown gall (Bacterium tumefaciens) - present in practically all of the apple districts of the State. Lately found in Verde and Skull Valleys, in Cherry Valley

and near Miami. The occurrence of large galls on trees recently planted points to infected nursery stock. Older trees die suddenly when the fruit is about half mature, especially where a water supply is not abundant.

A fruit rot resembling bitter rot, has recently been sent in from Dos Cabesas. It is being studied in cultures at the present time.

Root rot (Ozonium omnivorum) doing considerable damage in Gila and Yavapai Counties. One orchard at Kirkland, Yavapai County, has suffered from this disease for several years. Trees on about four acres have been killed in this orchard.

PEAR SCAB BAD IN MICHIGAN

C. W. Bennett of the Botany Department, Michigan Agricultural College, reports on September 15 that scab (Venturia pyrina) is unusually prevalent and destructive on pears. In many cases sprays have not been effective because of delayed early applications.

FRUIT SCALD OF PEACH REPORTED FROM NEW YORK

New York: It might be of interest to report a condition of peach fruit occurring locally in one county which corresponds to the general description offered by H. W. Anderson under date of July 1 and September 1 in Volume 6, No. 6 of the Plant Disease Bulletin. Although there seems to be some evidence of a fungus present in the lesions, I am of the opinion that this is secondary and that the primary cause was perhaps as Anderson suggests, largely weather and particularly spray injury. (G. R. Hoerner, Cornell University, September 15).

EASTERN BLUE STEM OF THE BLACK RASPBERRY

Eastern blue stem of black raspberry has just been described by R. B. Wilcox of the U. S. Department of Agriculture (U. S. Dept. Agr. Dept. Circ. 227: 1-12, June, 1922). According to Wilcox the disease is present in northern Ohio and other sections of the East, as well as in southwestern Michigan and southern Wisconsin. The disease is serious in intensive raspberry sections where it becomes established. Eastern blue stem of the black raspberry is distinct from the leaf curl or mosaic of the red raspberry as described by Rankin, Hockey and McCurry. Although leaf curl occurs on certain varieties of black raspberries, its symptoms are different from those of blue stem. On the other hand the blue stem has not been recognized on red raspberries, Japanese wine berries, or on Eldorado or Erie blackberries. However, a disease suspected as being blue stem was found on Taylor blackberries and on a small, wild species of blackberry.

According to Wilcox, the disease is apparently of the mosaic type, although all attempts to transmit it artificially have failed thus far. All the varieties of blackberry observed by Wilcox in northern Ohio were affected, but they are not susceptible to the same degree.

It is important that more thorough and accurate knowledge be obtained as to the geographical range and seriousness of this disease and that information concerning the varieties affected and the behavior of the disease in other states be collected. The readers of this Bulletin are, therefore, asked to read Department

Circular 227 and to send to the Plant Disease Survey information that they may have on the topics just mentioned.

MICHIGAN REPORTS ON GRAPE DISEASES

The important grape state of Michigan, which in 1919 produced 115,871,465 pounds of grapes and which has a total of nearly twelve million vines, has submitted reports of grape diseases as of September 15 as follows:

Black rot (Guignardia bidwellii). Quite common early in the season on the green fruits. Checked by the dry weather of July and August. Destructive only in few cases.

Downy mildew (Plasmopara viticola). Leaf phase of disease found over entire grape growing section but causing very little damage.

Dead arm (Cryptosporella viticola). In the Michigan Agricultural College experimental field at Paw Paw, arms from 10% of the plants were removed on account of the disease. Found in nearly all of the larger vineyards but usually on a very small percentage of plants.

Anthracnose (Gloeosporium ampelophagum) present in some vineyards but causing very little loss.

LATE BLIGHT OF POTATOES CAUSED BY PHYTOPHTHORA INFESTANS

Late blight and rot will cause considerable loss in New England and New York this year and there will be damage in northern Michigan and Wisconsin. However, as will be noted from the following reports, this disease is not especially serious in Pennsylvania or southward and westward from that state, and in Minnesota and the Dakotas no blight is reported.

Vermont: Common everywhere in Vermont except in the Lake Champlain Valley. All the best potato regions have been badly hit. (Lutman, September 1).

New Hampshire: Prevalent throughout the state. Indications are that there will be heavy losses from rot. (Butler, September 1).

New York: All over the state there was much late blight on the vines but as there have been no killing frosts, farmers have not yet begun to dig, except in the extreme northern part of the state. There, rot is seldom serious and very little has been reported in the St. Lawrence Valley this season. (Chupp, October 6).

Pennsylvania: Late blight only prevalent in northern tier of counties. Loss less than five percent of total crop. (Orton and Nixon, September 25).

First report from Wayne County July 17. Loss will be light this year as compared with the past two years. (Thurston, September 30).

Maryland: Very little late blight to date. (Temple & Jehle, September 1).

Michigan: Blight limited to Upper Peninsula and a few Northeast counties. (Coons, September 25).

Wisconsin: Present in vicinity of Price County. Started on heavier soils. Tuber rot commencing. No general epidemic at this date. (Vaughan, September 1).

Minnesota: No late blight. (Leach, September 25).

North Dakota: No late blight. (Bolley, September 25).

South Dakota: No late blight. (Evans, September 25).

MICHIGAN BEAN DISEASES

R. D. Rands in charge of bean diseases in the Office of Cotton, Truck & Forage Crop Disease Investigations, sends the following reports from the important commercial bean sections of Michigan, as of September 1:

Blight (Bacterium phaseoli) generally prevalent but possibly on account of the cool season and severe drought in August it did not spread rapidly nor attack the pods until very late in the season. A wilting and subsequent dying of the plant said to be due to this organism occurred to the extent of 20 to 70% in some fields in the middle of September. Many instances were observed supporting the prevailing opinion that the variety Robust is "commercially resistant" to this disease. Three thousand acres of 20-30 garden varieties grown for seed purposes showed generally much more blight than the field type. Here "Refugee 1000-1" was generally found to show marked resistance to this disease, while Black Valentine, Currie's, and Webber Wax were among the most susceptible. In the latter group losses of 20 to 75% reduction in yield were estimated, which does not include package-loss in case of light seed varieties. Apparent losses were less in black seeded varieties, where, except in severe cases, blight discoloration is not observed. Its effect may be no less, however, for the southern trucker who buys the seed.

Anthracnose (Colletotrichum lindemuthianum). Until September 1 this disease was observed sporadically in most fields of ordinary Red Kidney and Navy pea varieties throughout the Michigan bean section, but although severe on individual plants it apparently did not spread. In Huron County, however, where the midsummer drought was less severe, anthracnose became general in September and will cause an estimated loss of 5 to 20%, depending upon the degree of advancement of the crop.

Root rot (Fusarium martii-phaseoli). One field of "1201" (Navy pea variety) in Lapeer County showed 50 to 80% of the plants in certain portions much dwarfed and with the typical other symptoms. The field had been plowed up and replanted but apparently fared no better than the first.

Rust (Puccinia phaseoli). Although this disease was observed generally distributed in late August and September throughout the Central Michigan bean area, it was found causing appreciable injury only in an acre comprising St. Clair and Sanilac Counties in the southern part of the "Thumb" district. There practically all the leaves were yellowing and drying up from the great numbers of pustules. Where the pods were not already mature this resulted in some loss.

SEPTORIA LEAF SPOT OF LETTUCE

H. W. Dye, formerly of New York and now with the Dosch Chemical Company, reports on September 20 that during the course of a recent trip through the New York lettuce section he found Septoria on lettuce very much more general than at any time during his experience. Differences in the susceptibility of varieties were noted.

REPORTS OF ONION SMUT

Massachusetts: Onion smut has caused more than the usual amount of damage to the crop. Formaldehyde where properly applied has given good control. (Osmun, June 28).

New York (Orange County): The first test plot to be harvested showed the following yields: Formaldehyde treated - 725 bu. per acre; Check - 348 bu. per acre. (N.Y. St. Coll. Agr. Dept. Pl. Path. & Ent. Weekly News Letter, July 31).

Ohio: (Urocystis cepulae). The formaldehyde drip method at planting time gives very excellent control in all sections where onions are grown with the exception of one case in northern Wayne County, where the accumulation of infectious material was so great that only 50% control was accomplished. (R. C. Thomas, September 15).

Wisconsin: Practically no loss as most growers use the formaldehyde drip where any infection is known to exist. A few small fields not treated will lose 50% of crop. (Vaughan, September 15).

DOWNY MILDEW OF ONION

Louisiana: The disease was present but no data were obtained on loss. (Edgerton, July 1).

Ohio: The presence of the disease has been noted in practically all truck sections where onions are grown, yet the loss this year has been negligible. (R. C. Thomas, September 15).

Wisconsin: Found in Pierce County on onions growing in drained swamp area. Probably reduced crop 50% on a one-acre field. Reported as minor in a few fields near Racine. (Vaughan, September 15).

Oregon: Practically none has appeared this season on account of the early and protracted summer drought. (Barss, September 15).

PINK ROOT OF ONION REPORTED FROM TEXAS, WISCONSIN, AND OREGON

Pink root (Fusarium malli) is reported from Texas as causing about 5% loss, and from Wisconsin as common but not causing much damage.

Oregon: Considerable evidence of root damage due to some apparent disease suspected to be "pink root" was noted in a number of onion fields

in Washington County especially where there appeared to have been insufficient soil moisture available. (Barss, September 15).

FUSARIUM BULB ROT OF ONION

Wisconsin: Widespread, and in some fields causing considerable damage. Associated with maggot injury. (Vaughan, September 15).

Washington: Crop cut about in half by thrips and Fusarium decay, the latter being bad in some fields. (Division Letter, Fruits & Veg. Div., Bu. Agr. Econ. July 27, 1922).

BLACK STEM ROT OF ONION SEVERE IN LOUISIANA

Edgerton reports black stem rot (Macrosporium parasiticum) to be severe as usual in the Bayou LaFourche section of Louisiana (July 1).

BACTERIAL SOFT ROT OF ONIONS IN VIRGINIA

According to Fromme (September 15) bacterial soft rot of onion is reported to be causing considerable loss in market gardens at Lynchburg.

ONIONS APPARENTLY FREE FROM DISEASE THIS YEAR IN SEVERAL STATES

Besides the report from North Dakota quoted below; those from Connecticut, New Jersey, Minnesota, and Colorado state that no diseases of onion have been reported, or that none have been found so far this season.

North Dakota: We have had no reports of onion diseases from the state this year. The crop is not extensively raised, but whenever grown, seems to do well and remain quite free from disease. This season I have not noticed any smut or downy mildew, both of which have occurred here in other years. (Woniger, October 1).

ANGULAR LEAF SPOT OF COTTON REPORTED FROM MISSISSIPPI, TEXAS, AND ARIZONA

That practically complete control of Bacterium malvacearum may be obtained from the treatment of cotton seed with sulphuric acid is indicated in the report from Arizona.

Mississippi: Common all over the state on the foliage. Unimportant because of the apparent lack of boll infection. (Neal, September 1).

Texas: (Boll rot (angular leaf spot) prevalent. Severe in some localities. 2% loss. (Taubenhaus, September 1)

Arizona: Black-arm became bad late in the season after the summer rains began. One company is reported to have lost between 700 and 1,000 acres. On the Salt River Valley Farm, one field of fourteen acres

practically free from the disease due to sulphuric acid treatment of the seed; another of four acres from the same original lot of seed is badly infected. (Brown, October 1).

RUST OF COTTON REPORTED FROM ARIZONA

Texas is the only state from which reports of the true rust (Aecidium gossypii) of cotton have been received by the Survey, previous to this year. The first occurrence noted in that state was in 1917, and it was also reported in 1920 and 1921. Apparently it has never caused much damage.

J. G. Brown reports its presence in Arizona this year as follows:

> "Appeared in the State for the first time during the past summer. First noticed August 29, but it had evidently been present in the field a month or more, since it was well distributed."(October 1).

COTTON ANTHRACNOSE SERIOUS IN PARTS OF MISSISSIPPI

According to Neal (September 1), anthracnose (Glomerella gossypii) of cotton is very prevalent in many parts of Mississippi this year, and is especially serious in Neshoba, Clarke, Lee, and Hinds Counties. The disease is also reported from Texas, where it is said to be unimportant.

NON-PARASITIC "RUST" OF COTTON PREVALENT IN MISSISSIPPI

Mississippi: Very prevalent this season. Many of the experimental plots at the Experiment Station were nearly two-thirds defoliated by August 15. Reported also from other parts of the state. (Neal, September 1).

OTHER DISEASES OF COTTON

Wilt (Fusarium vasinfectum) is said to be general and common in Mississippi. (Neal, September 1).

Root rot (Ozonium omnivorum) - reported by Taubenhaus as rather scarce in Texas, because of dry weather.

WISCONSIN TOBACCO DISEASES

Under date of September 1, James Johnson sent in the following information concerning tobacco diseases in Wisconsin:

Wildfire (Bacterium tabacum). First known occurrence in Wisconsin June, 1922. Found on about 90 farms in Dane County. Damage slight up to about 15% on infected crops. No spread after about July 15 owing to dry weather prevailing. Eradication attempted, in cooperation with State Department of Agriculture.

Estimated loss $5000.

Mosaic, cause unknown, is comparatively prevalent this year, accompanied by an uncommon amount of "rusting or fireing" of mosaiced plants (a result of mosaic) causing growers considerable concern. Some fields noted with as high as 99% mosaic stunted plants. Estimated loss $100,000.

Damping-off (Pythium and Rhizoctonia) - occurred to a limited extent; no serious damage done.

Root rot (Thielavia basicola), very prevalent owing to cool weather throughout the season; damage up to 50% in many fields; estimated loss from root rot $1,000,000.

Leaf spots (Non-parasitic) not especially common this year and little damage done.

Ordinary rust, caused by an undescribed bacterium, is reported as of occasional occurrence, but damage negligible.

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